

Borehole

# 60-09-01

Log Event A

## Borehole Information

Farm : <u>U</u>	Tank : <u>U-109</u>	Site Number : <u>299-W18-120</u>
N-Coord : <u>38,041</u>	W-Coord : <u>75,818</u>	TOC Elevation : <u>665.00</u>
Water Level, ft : <u>97.55</u>	Date Drilled : <u>2/28/1976</u>	

## Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>100</u>	

## Borehole Notes:

This borehole was drilled with 8-in. casing placed to 20 ft. Six-in. casing was placed from 0 to 105 ft. The bottom 5 ft (100 to 105 ft in depth) of the borehole was grouted as the casing was withdrawn to 100 ft. Grout was placed between the 6-in. casing and sediment from 0 to 20 ft as the 8-in. casing was removed from the borehole. According to the driller's records, this borehole was not perforated.

## Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1995</u>	Calibration Reference : <u>GJPO-HAN-3</u>	Logging Procedure : <u>P-GJPO-1783</u>

## Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>11/13/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>24.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>11/13/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>98.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>23.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole  
Log Data Report

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### Analysis Information

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Analyst : P.D. Henwood

Data Processing Reference : P-GJPO-1787

Analysis Date : 7/12/1996

#### Analysis Notes :

This borehole was logged in two log runs. The pre- and post-survey field verification spectra show consistent activities, indicating the logging system operated properly during data collection. Gain drifts during log run 1 data collection were minor and did not require energy versus channel number recalibrations during processing of the data to maintain proper peak identification. Data in log run 2 required several gain adjustments. Depth overlaps, where data were collected on separate days at the same depth, occurred in this borehole at about 24 ft. The calculated concentrations were within the statistical uncertainty of the measurements, indicating very good repeatability.

The casing thickness is presumed to be 0.280 inch (in.), on the basis of the published thickness for schedule-40, 6-in. steel casing. Casing-correction factors for a 0.280-in.-thick steel casing were applied during analysis.

Cs-137 is the only man-made radionuclide identified in this borehole. The presence of Cs-137 was measured continuously from the ground surface to about 11.5 ft and at a few isolated locations between 12 and 36 ft in depth. The maximum Cs-137 concentration is about 3.5 pCi/g. Reported concentrations between the ground surface and 20 ft should be considered qualitative because corrections are not made to the data for the grout that is present in the borehole from 0 to 20 ft.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank U-109.

#### Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.